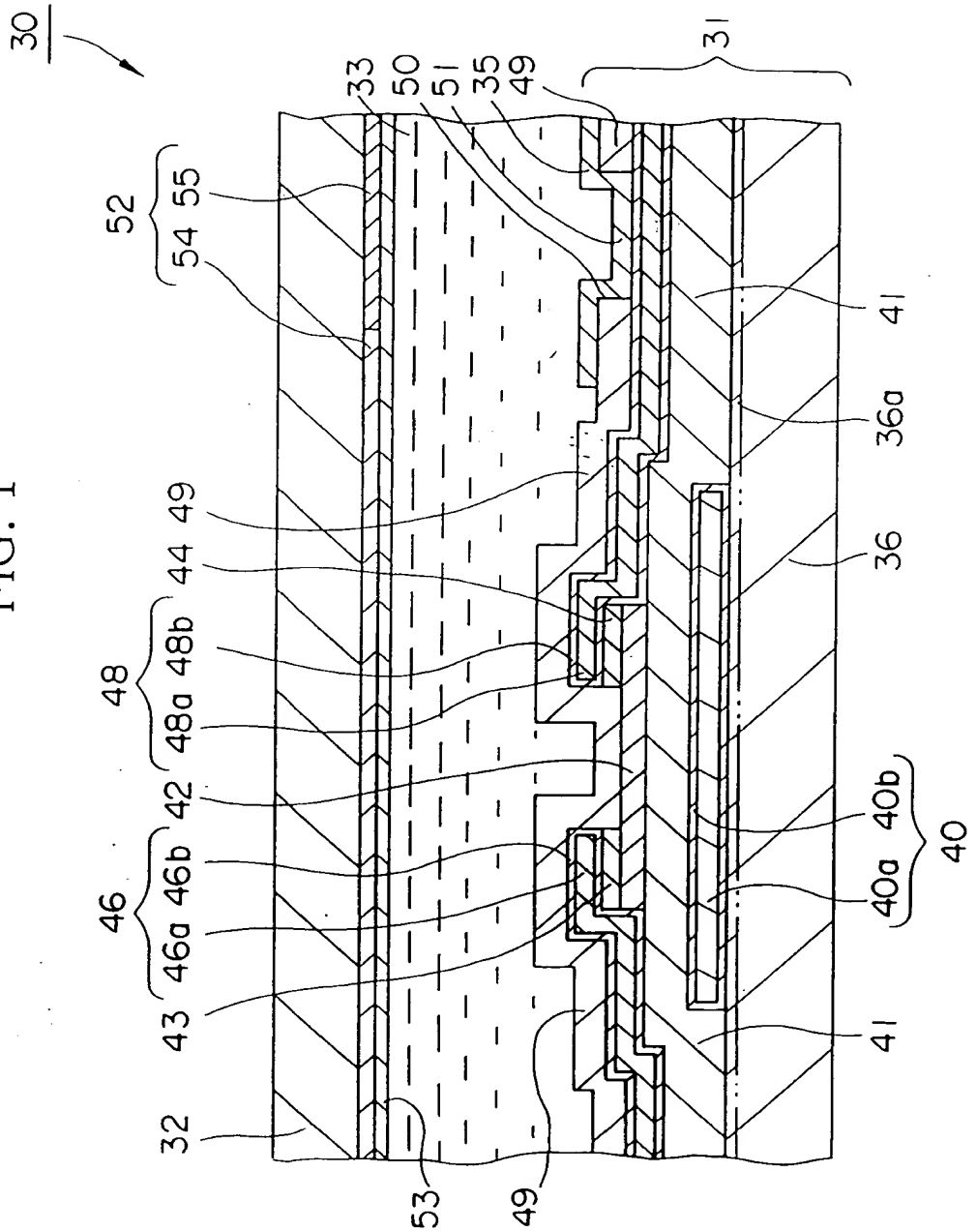
FIG. 1


30
31
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49
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54
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41
36a
49
44
36
48
48b
48a
42
40b
40
46
46b
46a
40a
43
41
32
53
49

FIG. 2

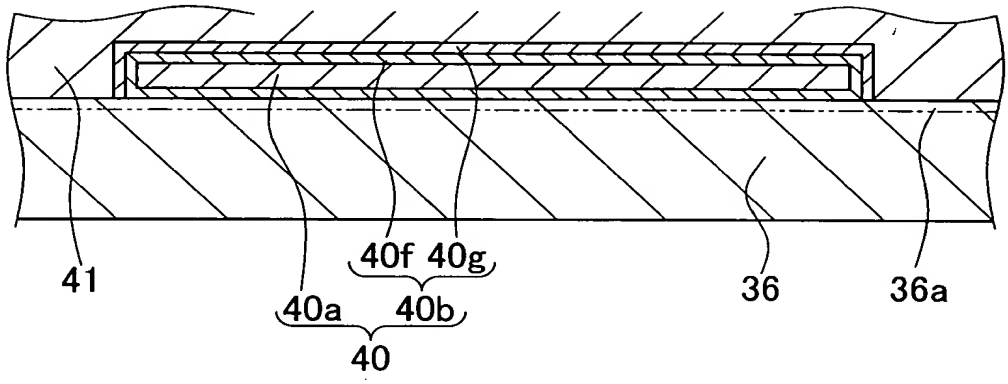

FIG. 3

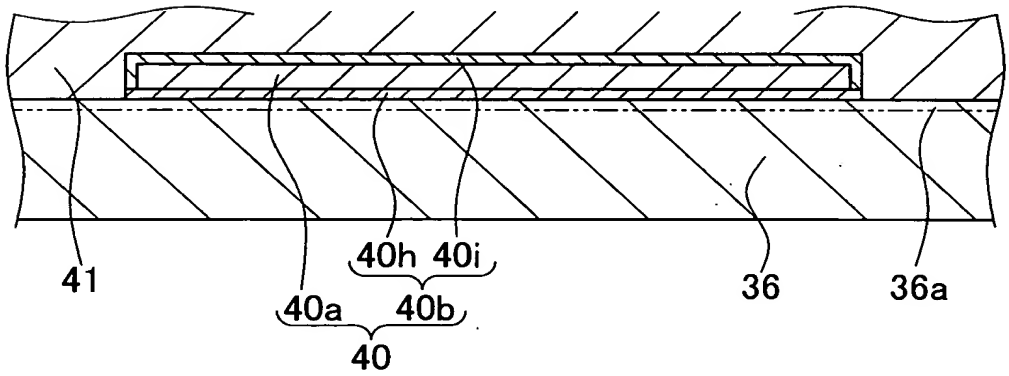

FIG. 4

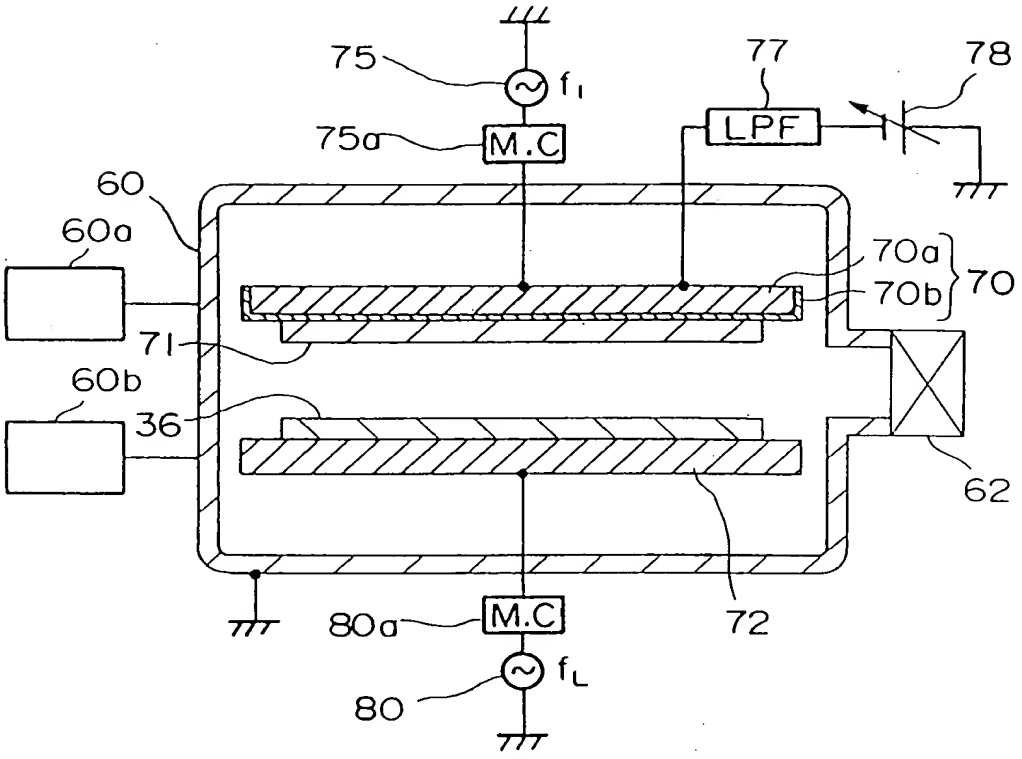

FIG. 5

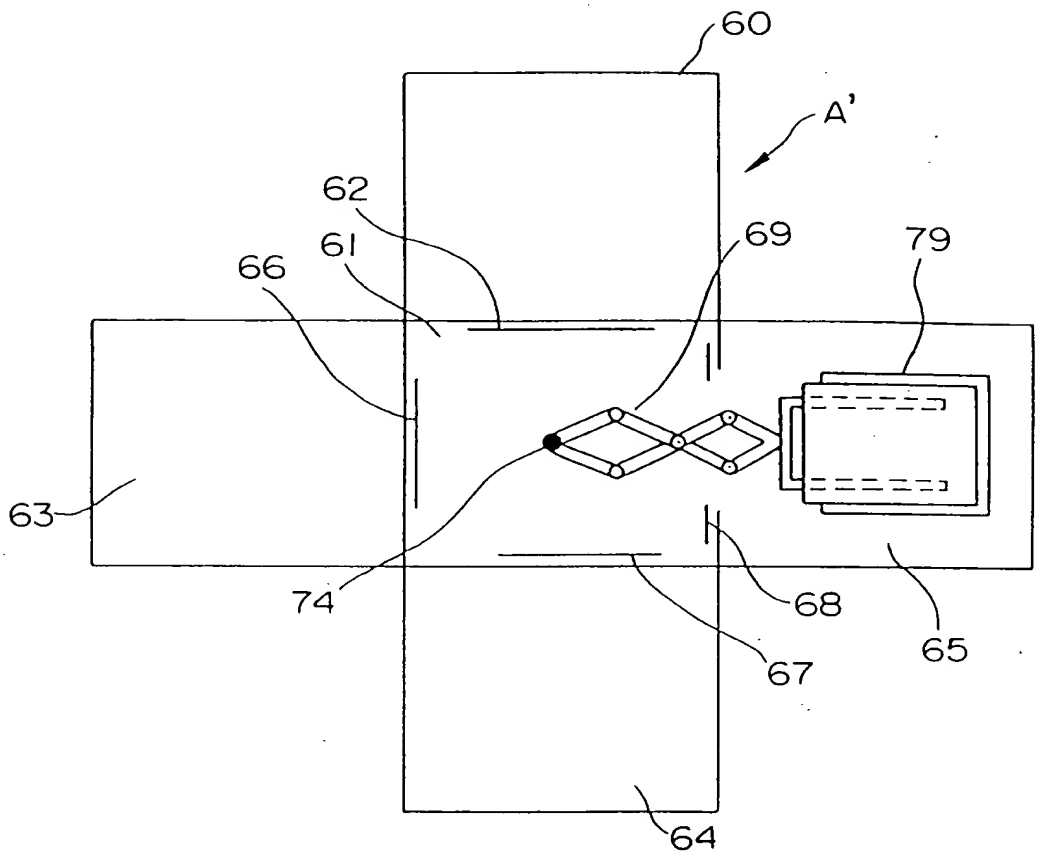

FIG. 6

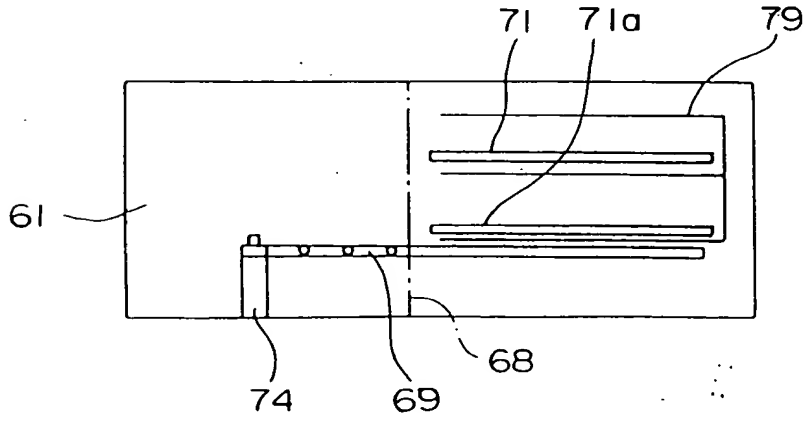

FIG. 7A

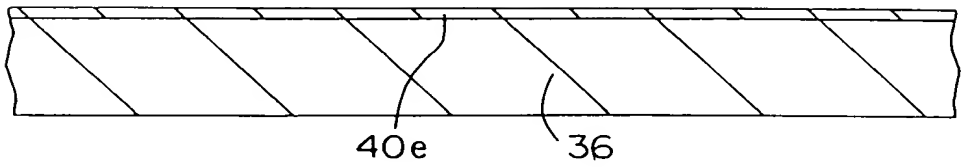

FIG. 7B

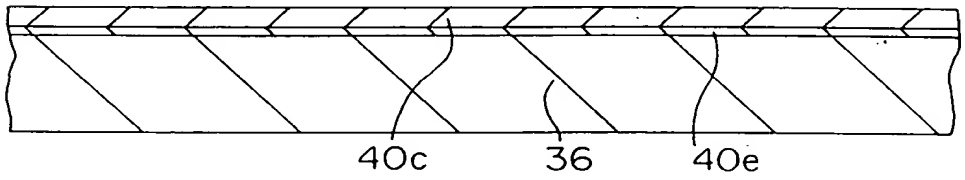

FIG. 7C

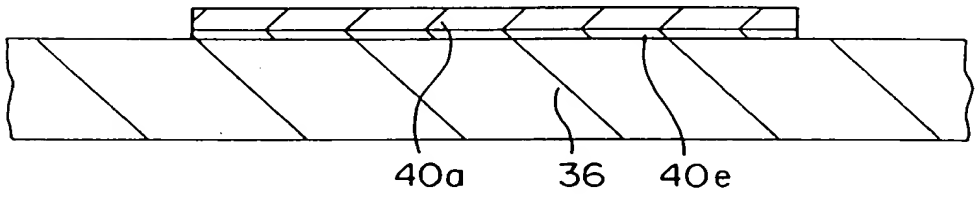

FIG. 7D

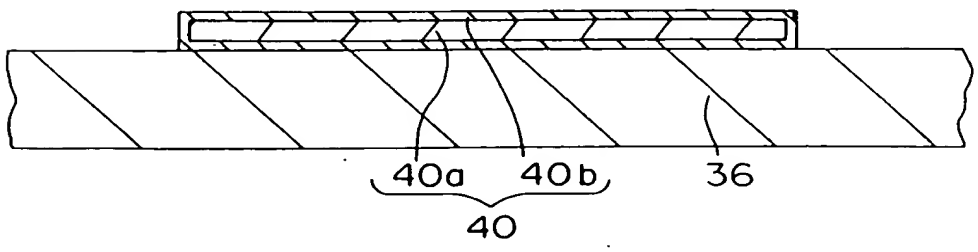

FIG. 8A

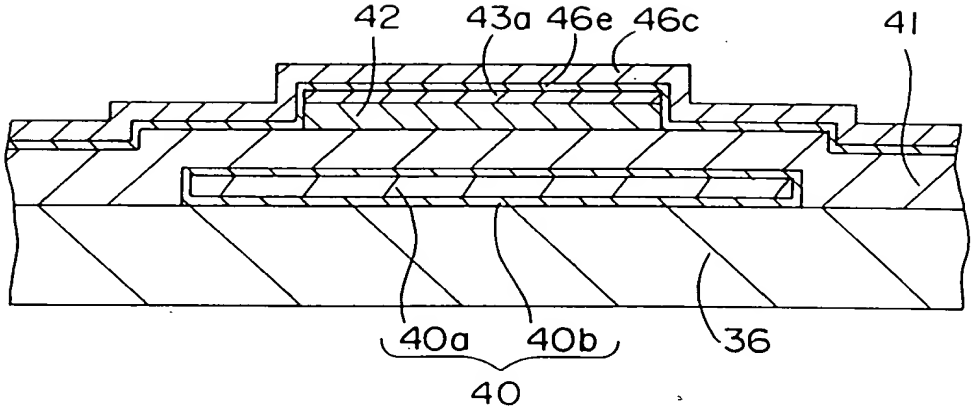

FIG. 8B

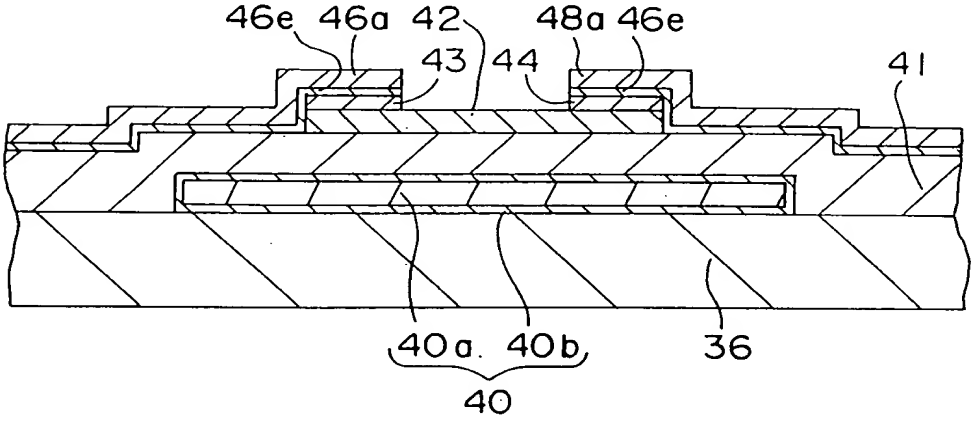

FIG. 8C

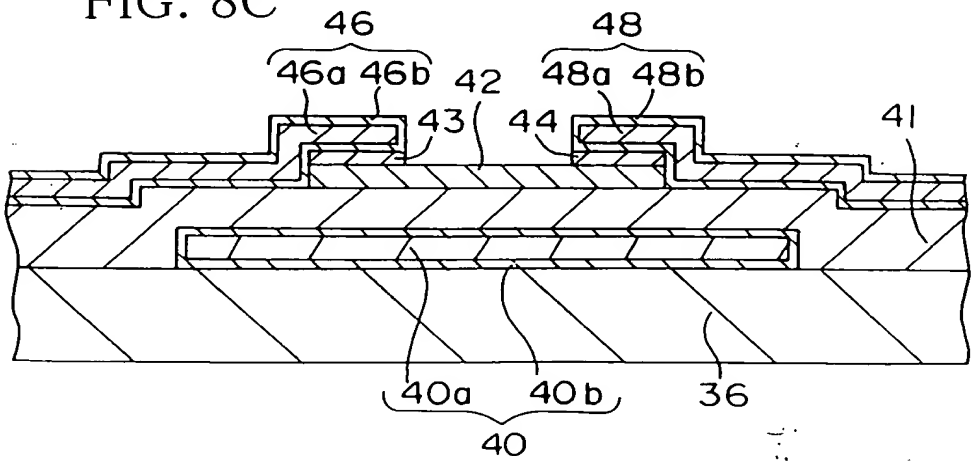

FIG. 9

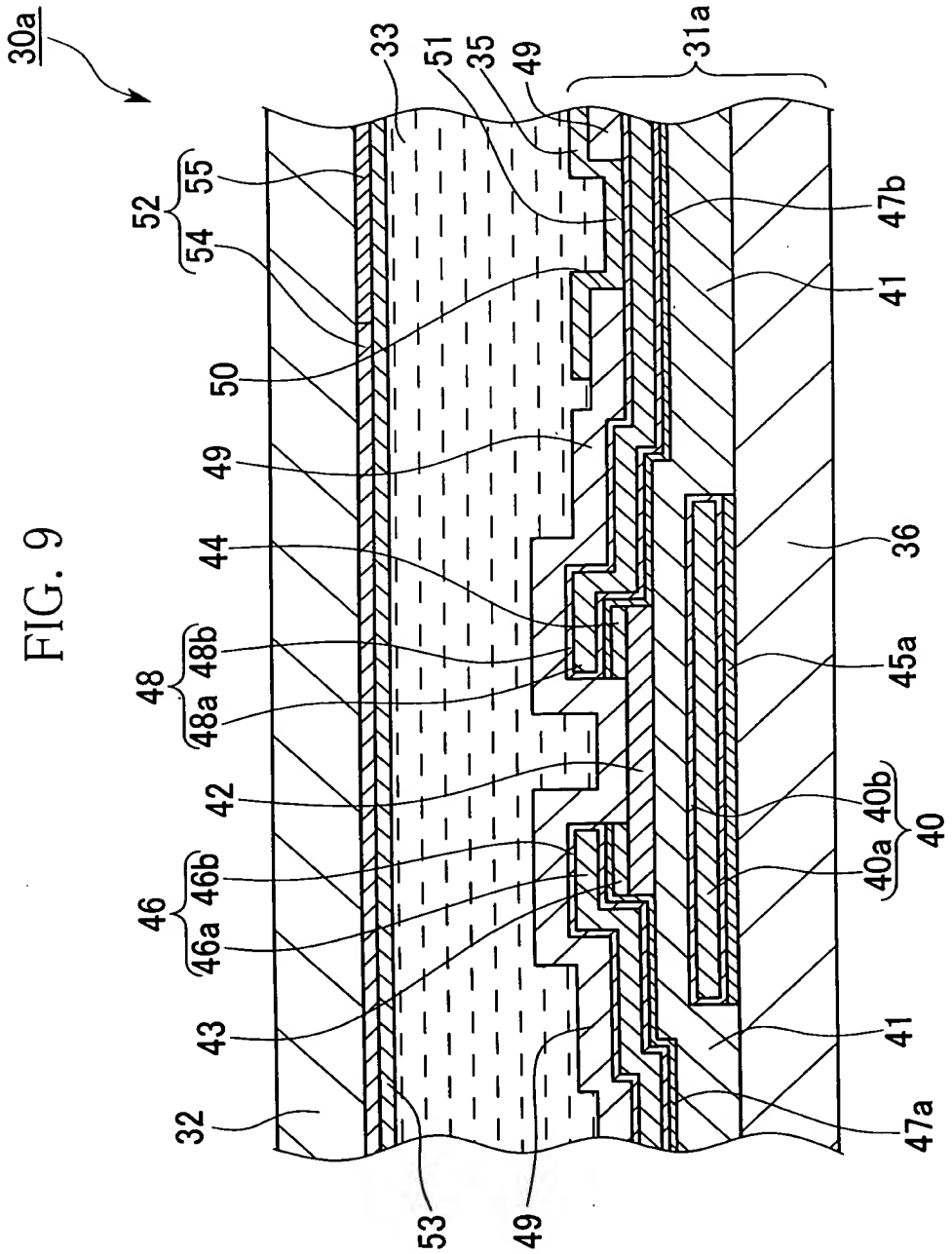

FIG. 10A

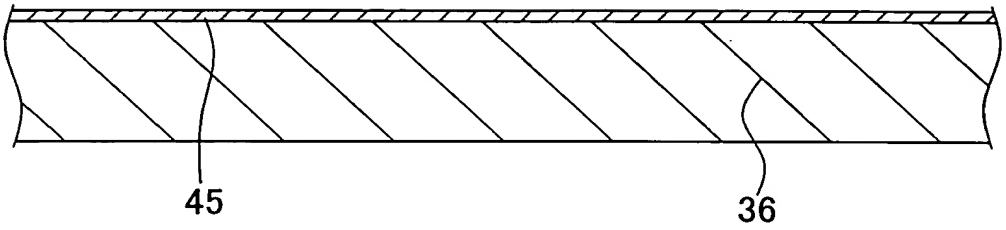

FIG. 10B

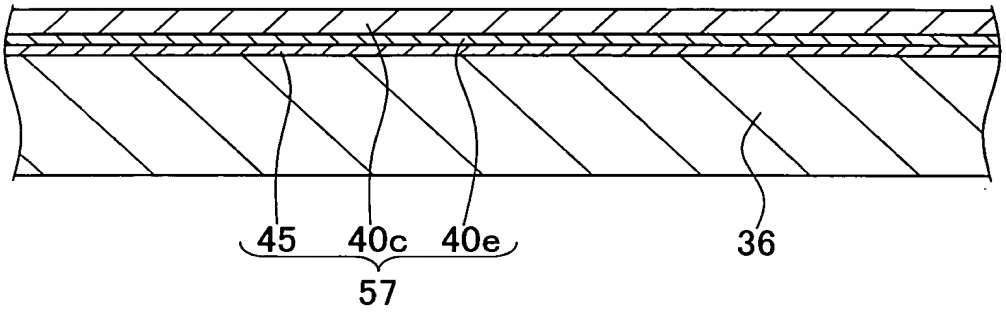

FIG. 10C

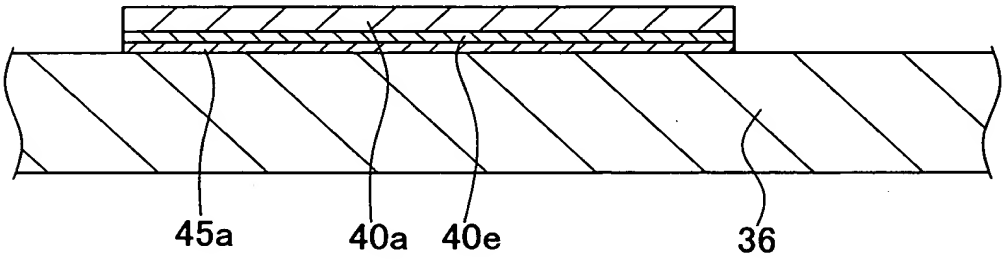

FIG. 10D

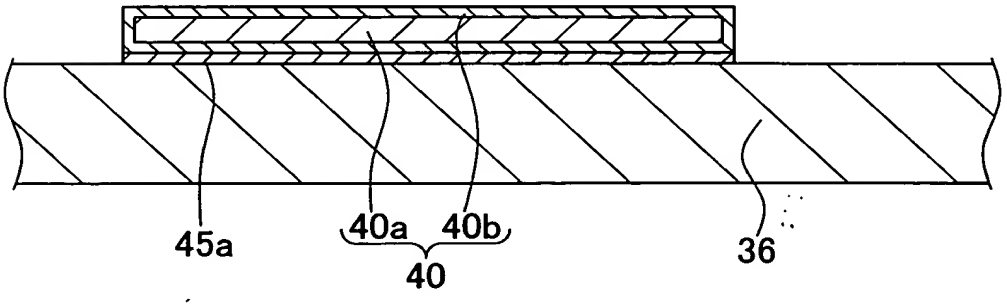

FIG. 11A

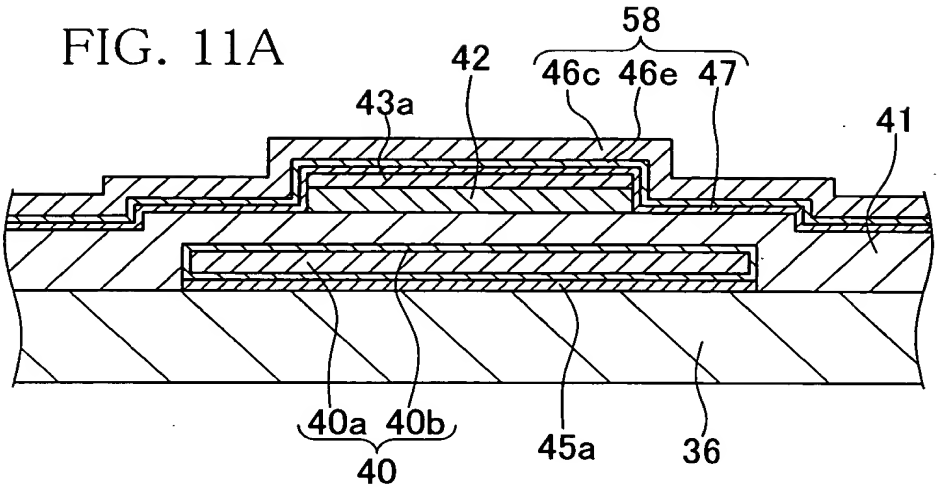

FIG. 11B

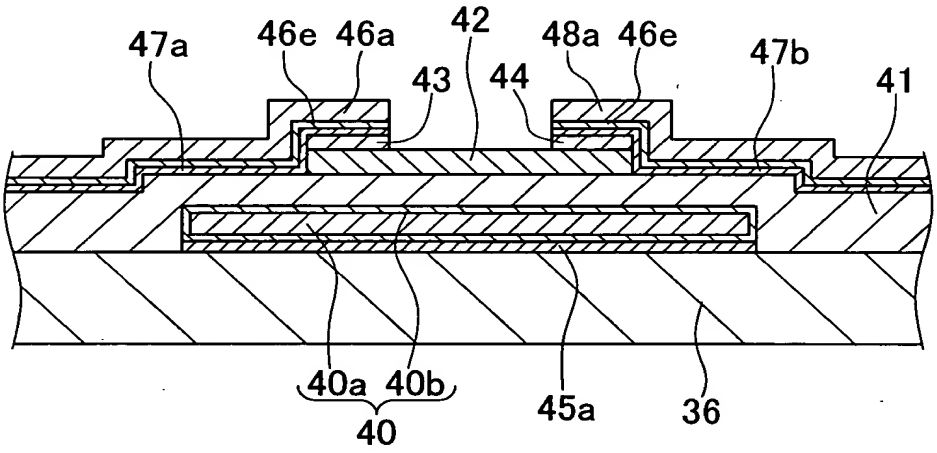

FIG. 11C

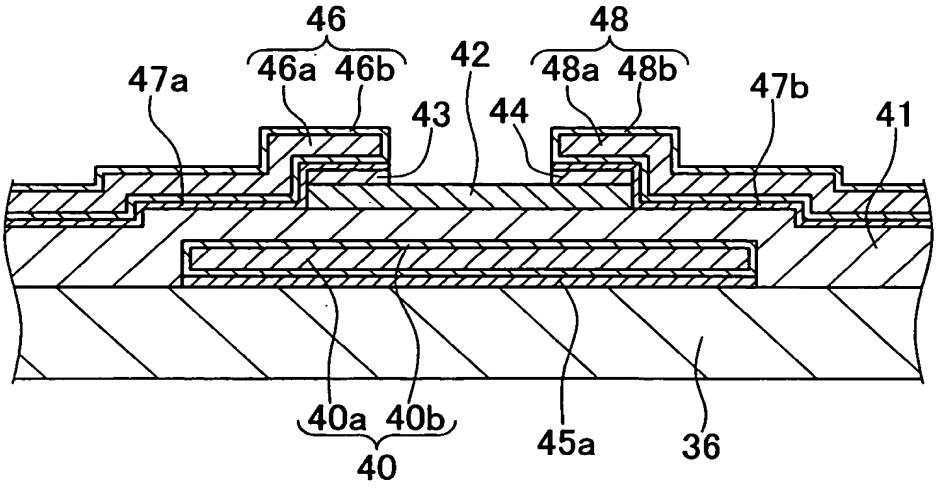

FIG. 12

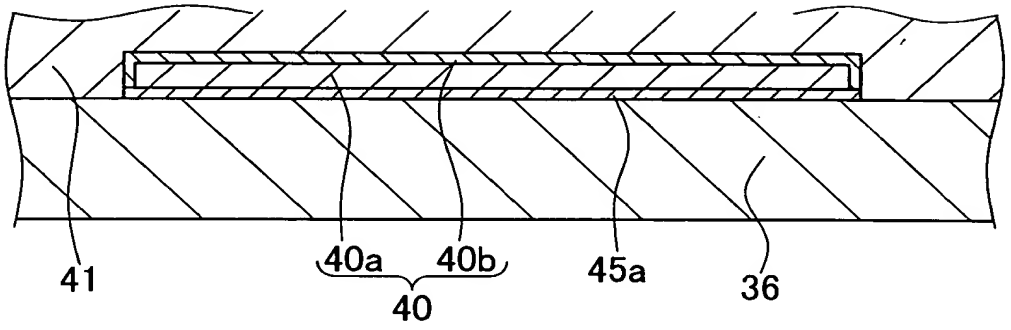

FIG. 13

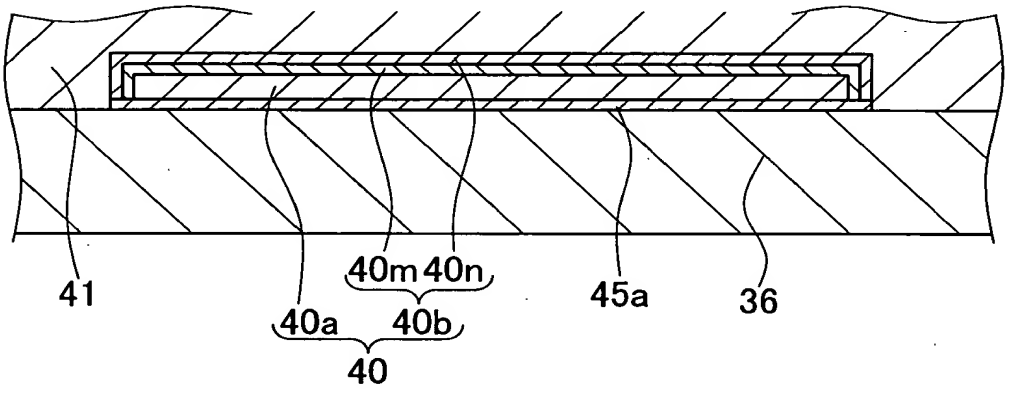

FIG. 14

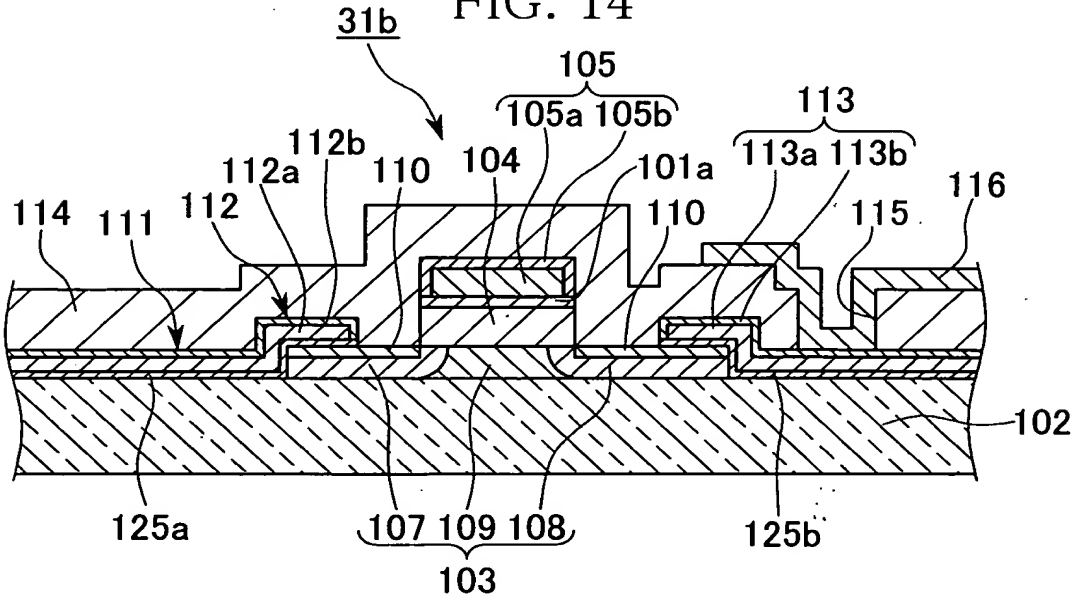

FIG. 15

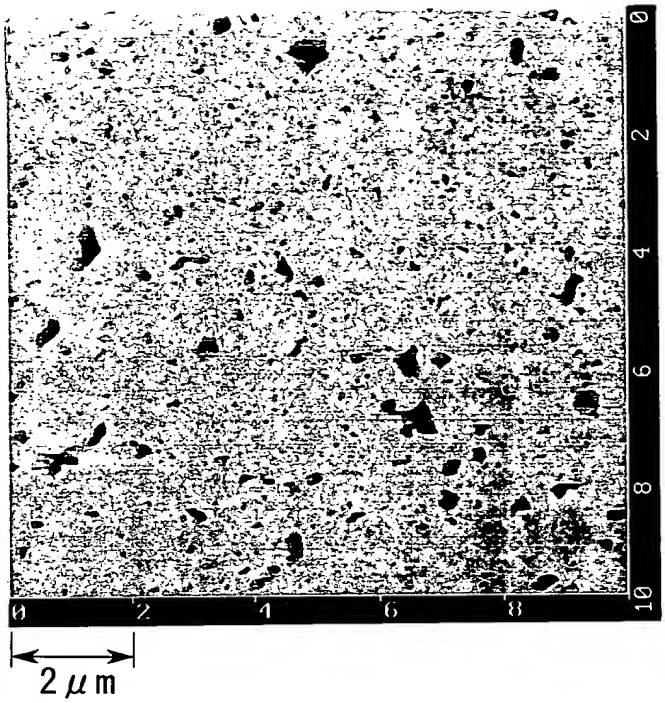

FIG. 16

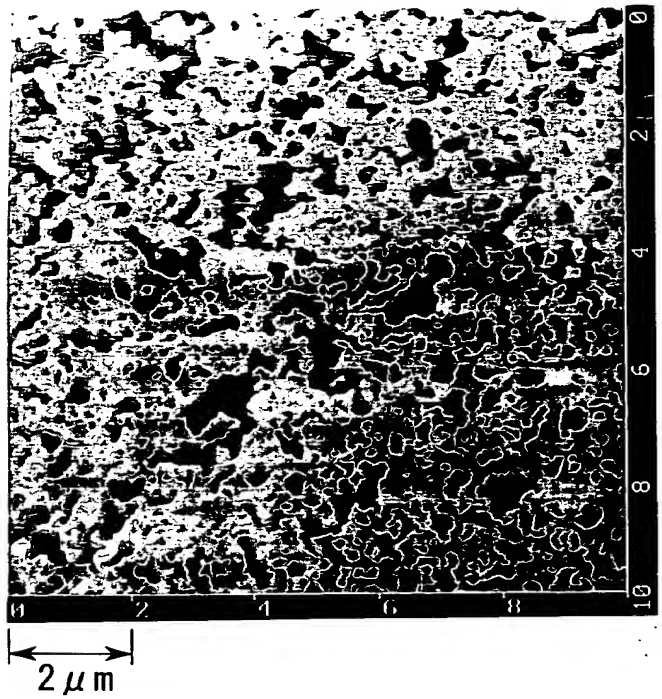

FIG. 17

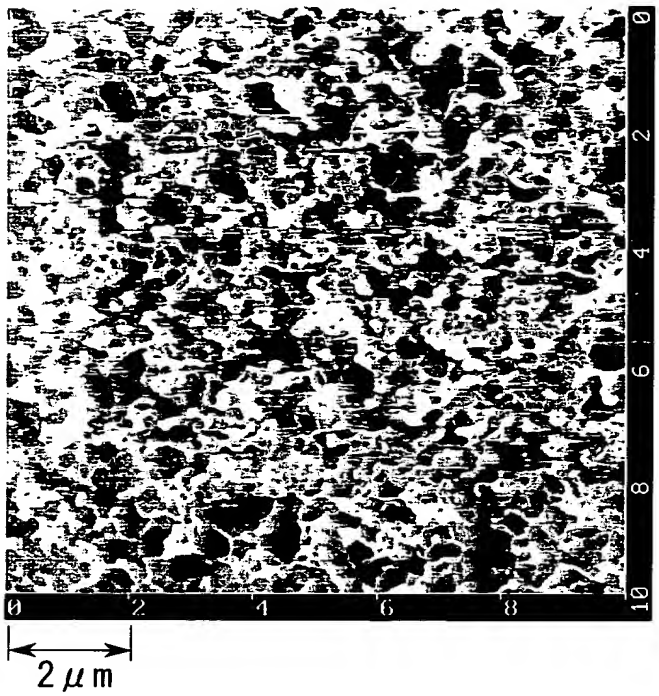

FIG. 18

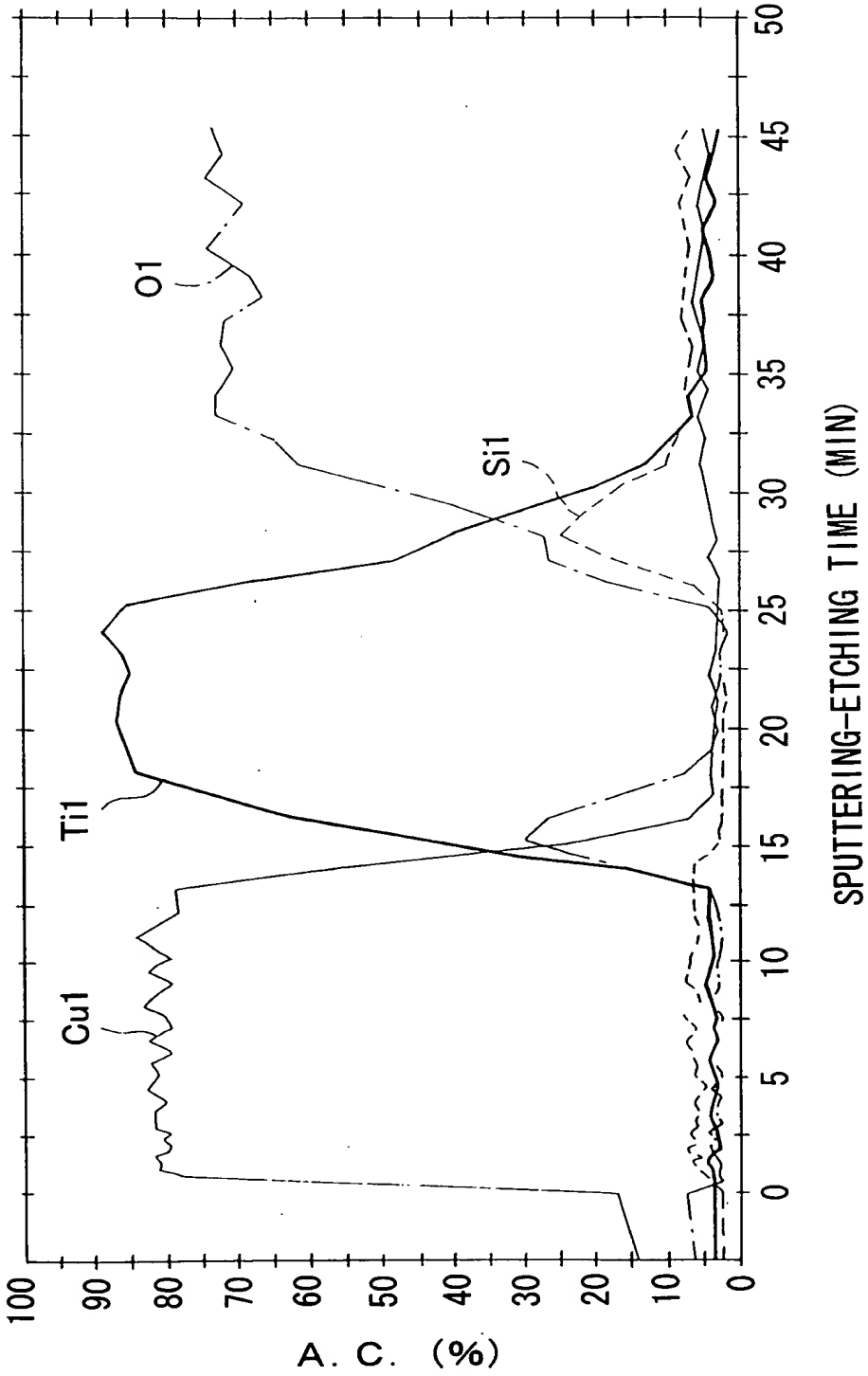

FIG. 19

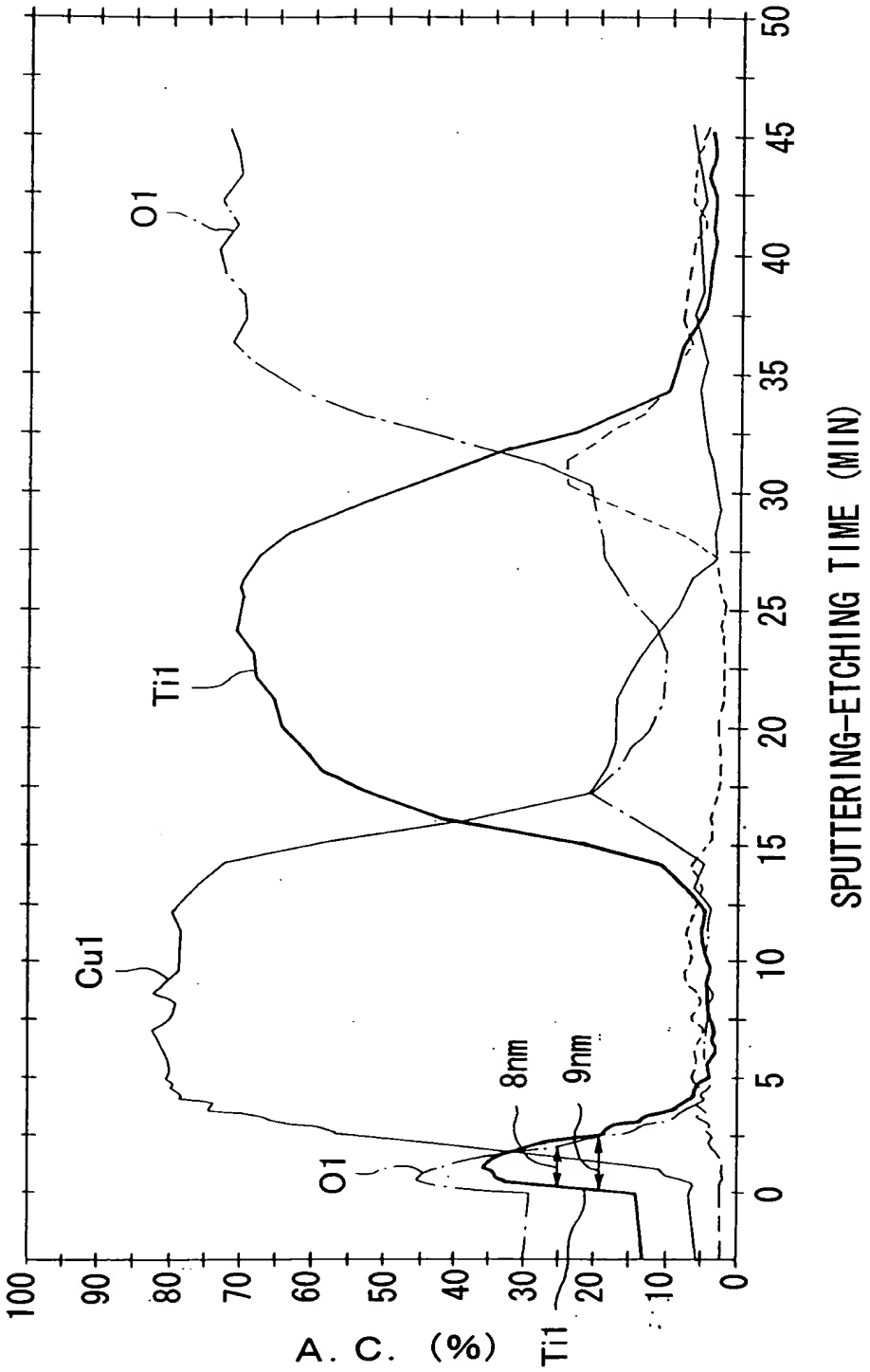

FIG. 20

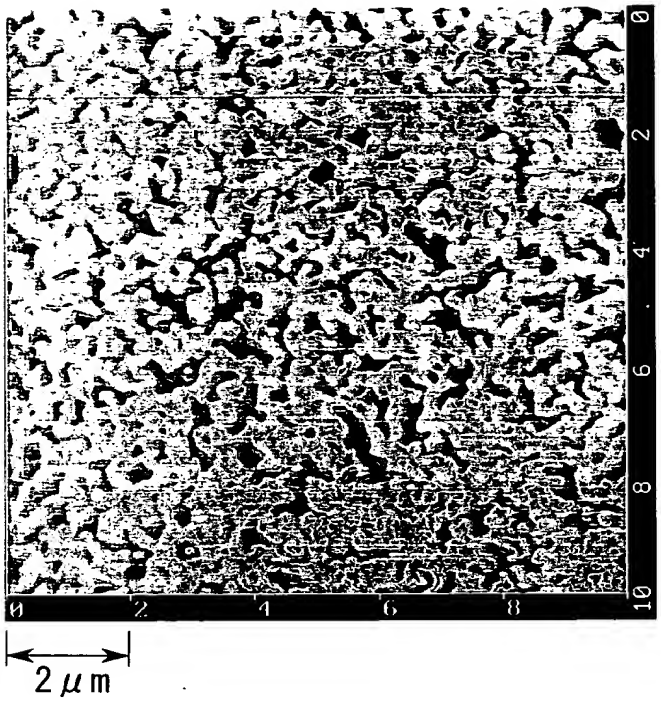

FIG. 21

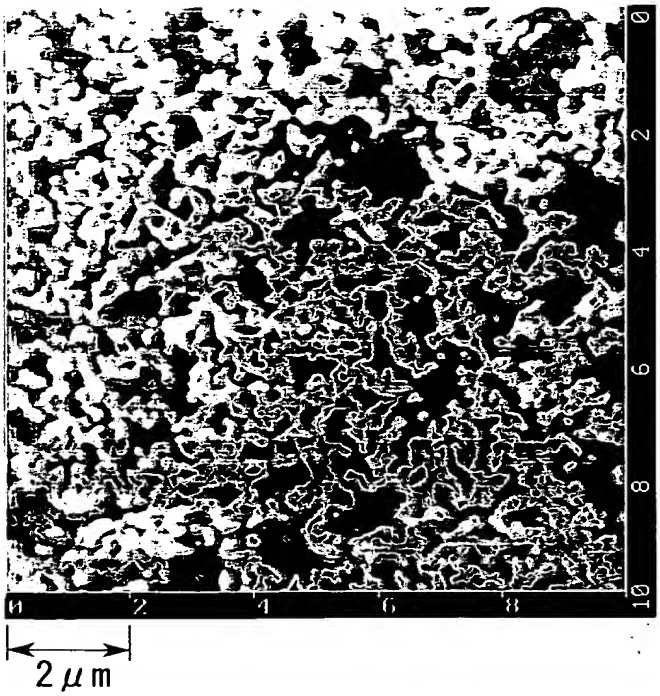

FIG. 22

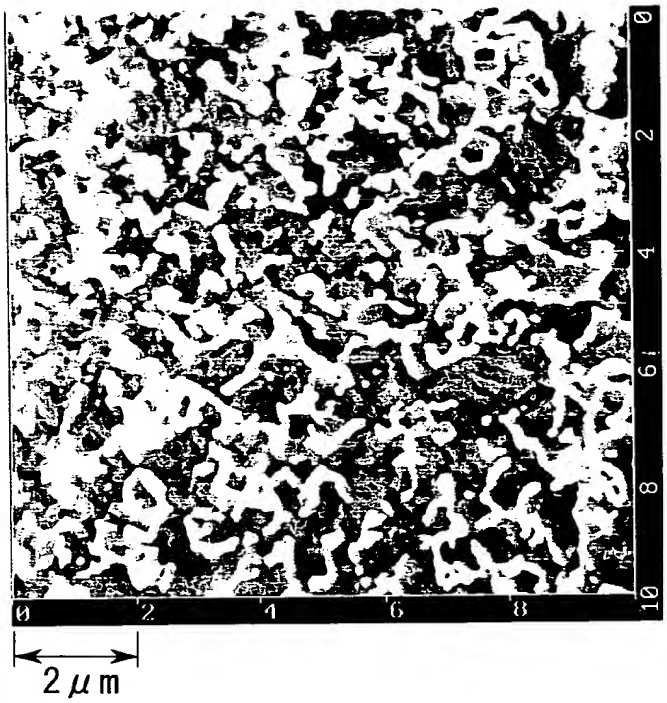

FIG. 23

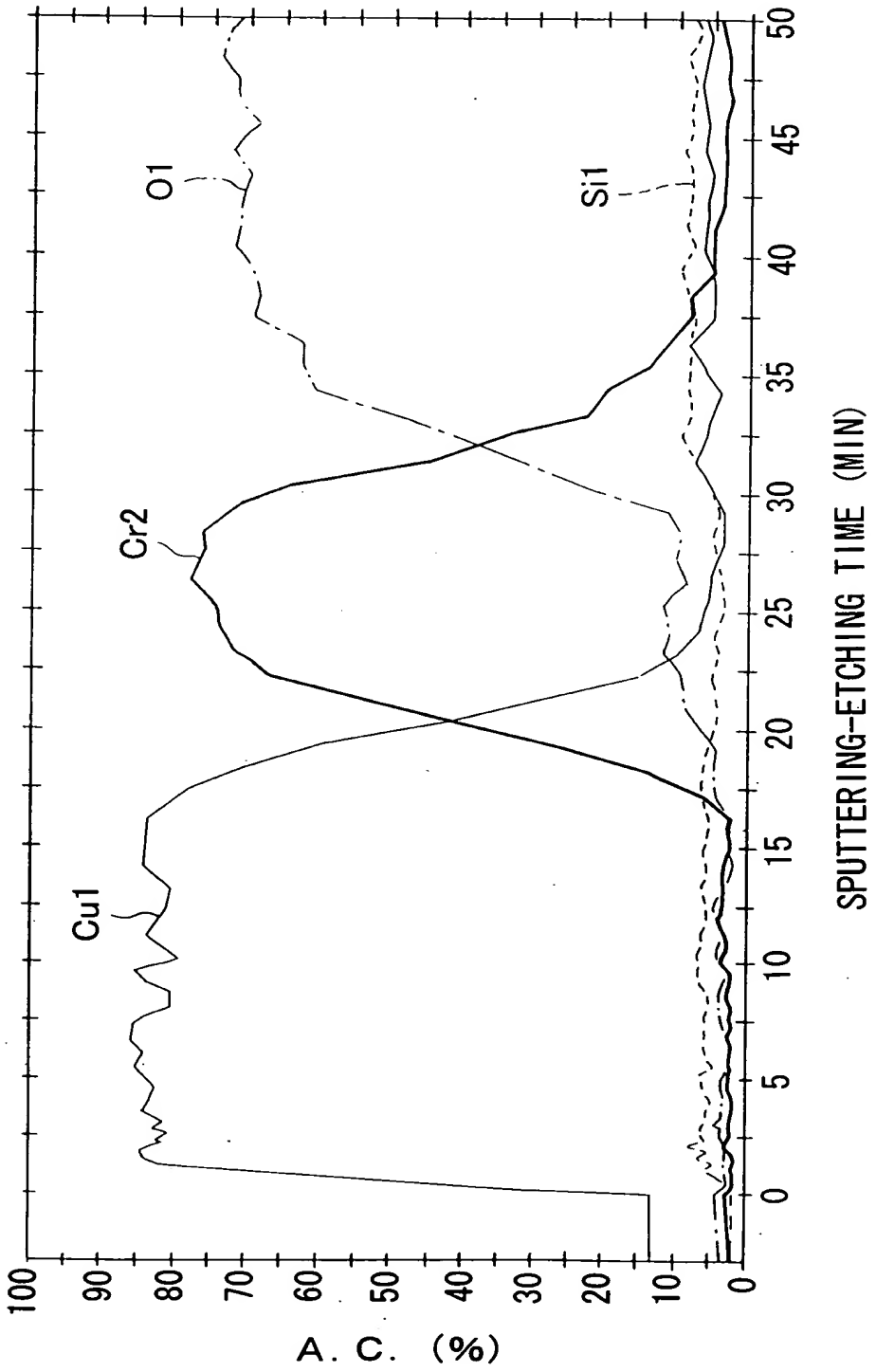

FIG. 24

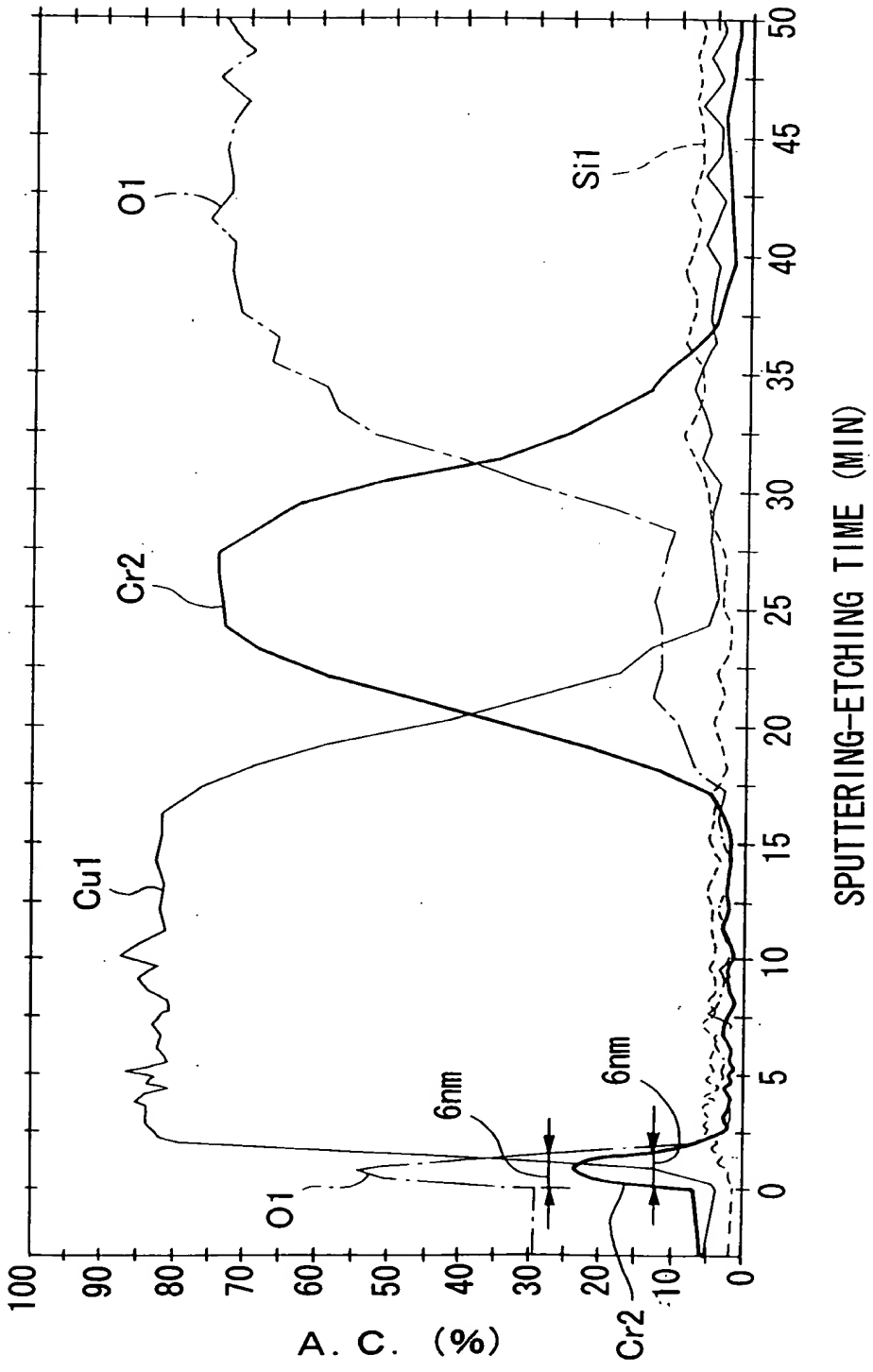
Cu1
O1
Cr2
Si1
6nm
6nm
O1
Cr2
A. C. (%)
SPUTTERING-ETCHING TIME (MIN)
0
10
20
30
40
50
60
70
80
90
100
0
5
10
15
20
25
30
35
40
45
50

FIG. 25

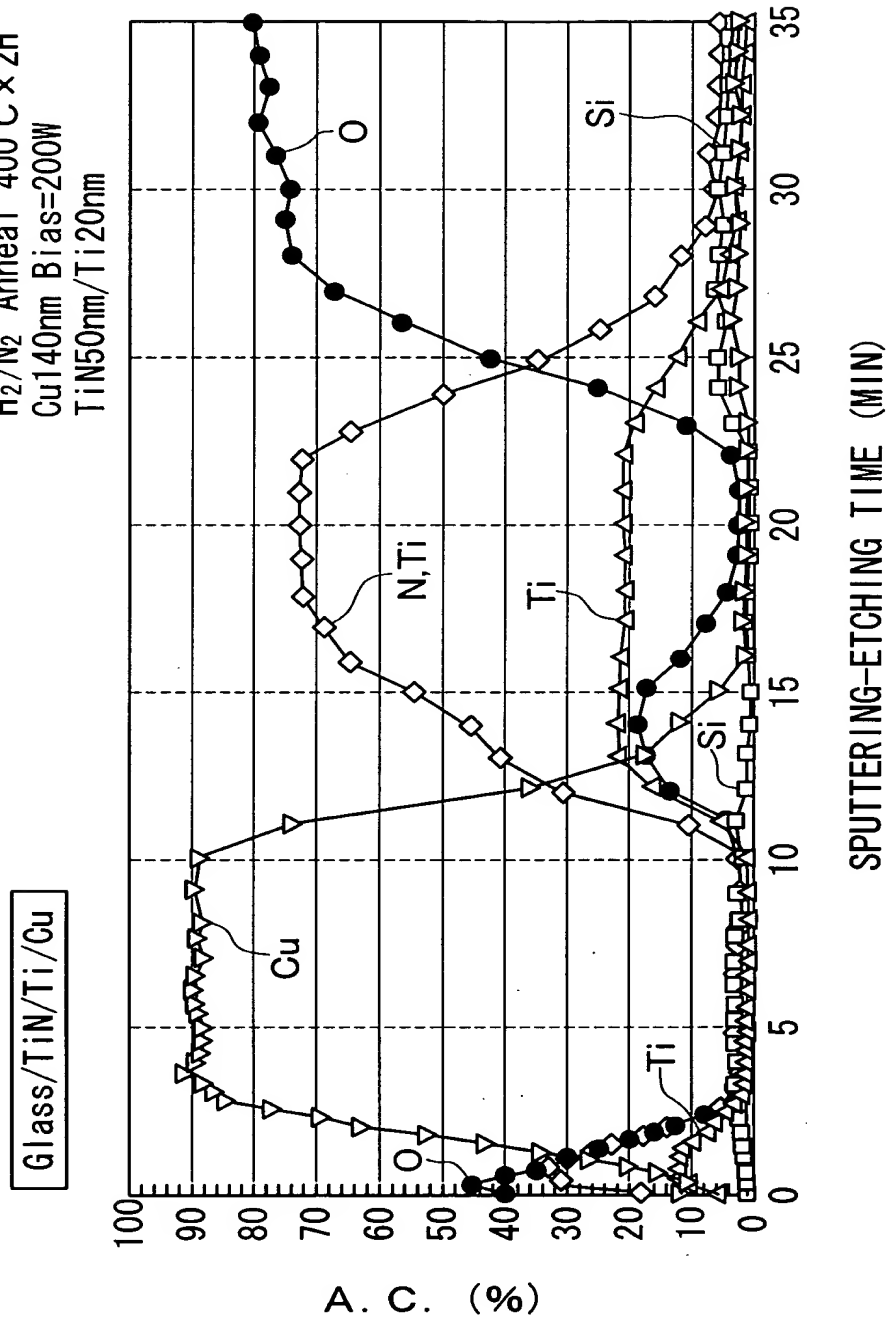

FIG. 26

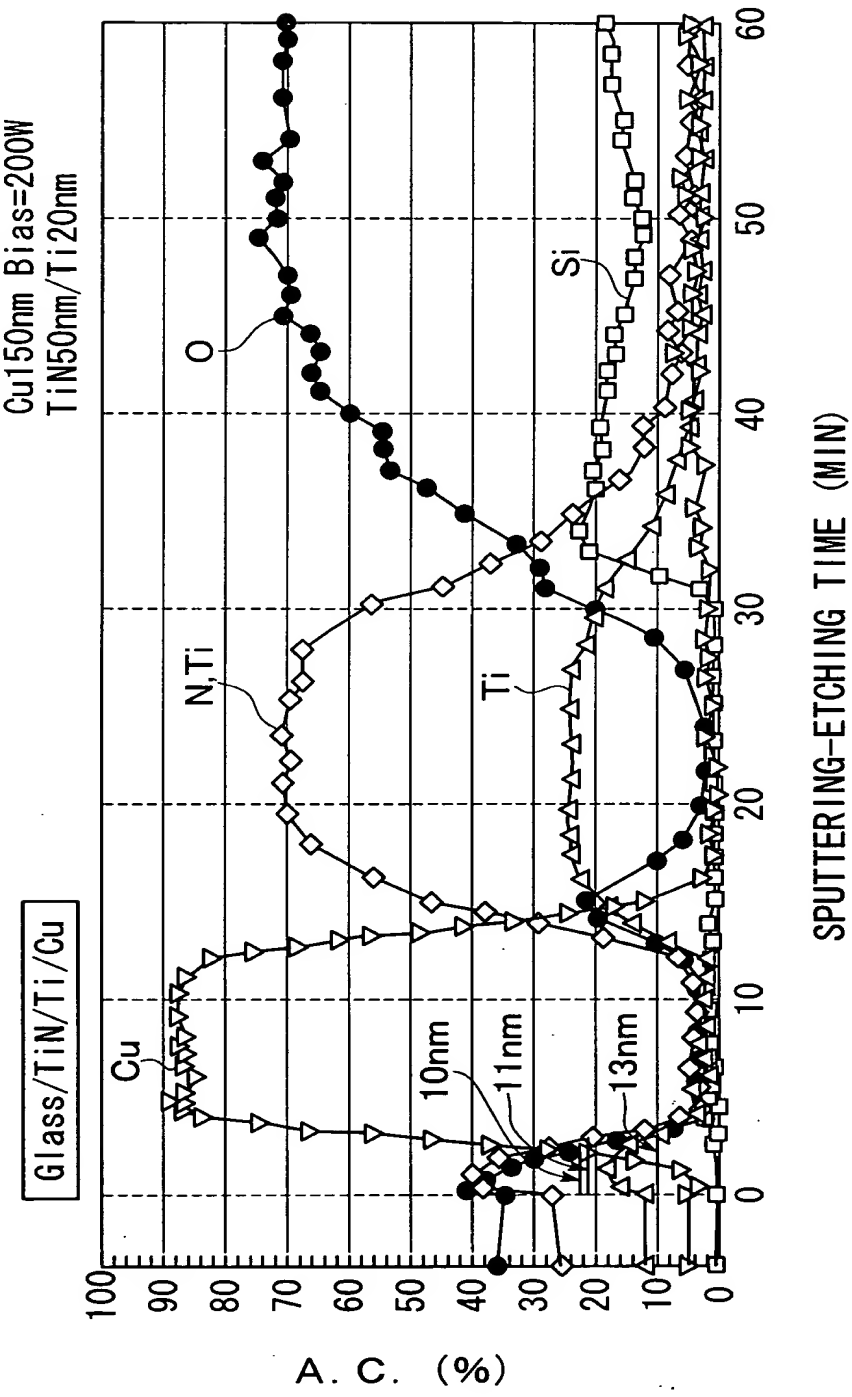

FIG. 27

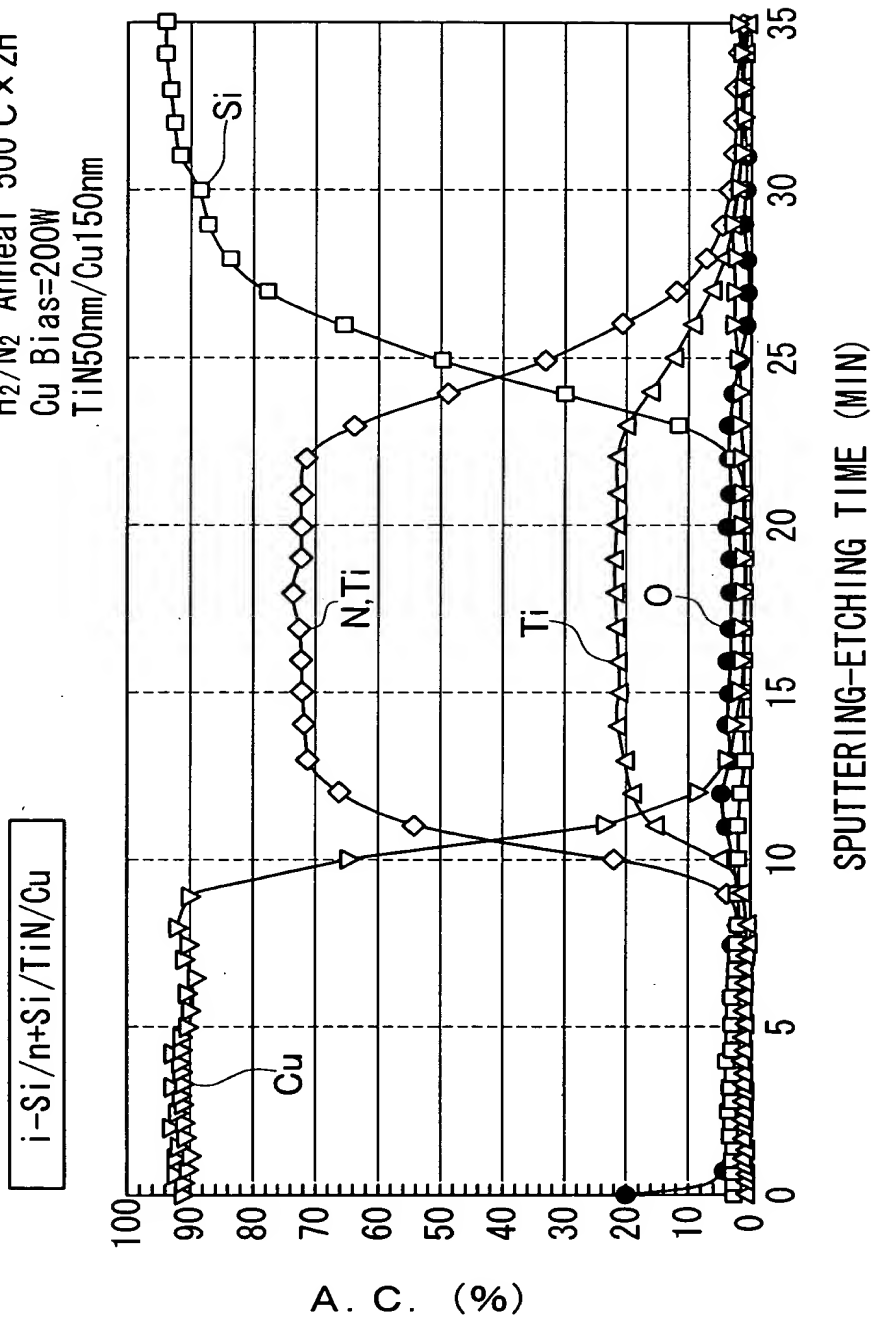

FIG. 28

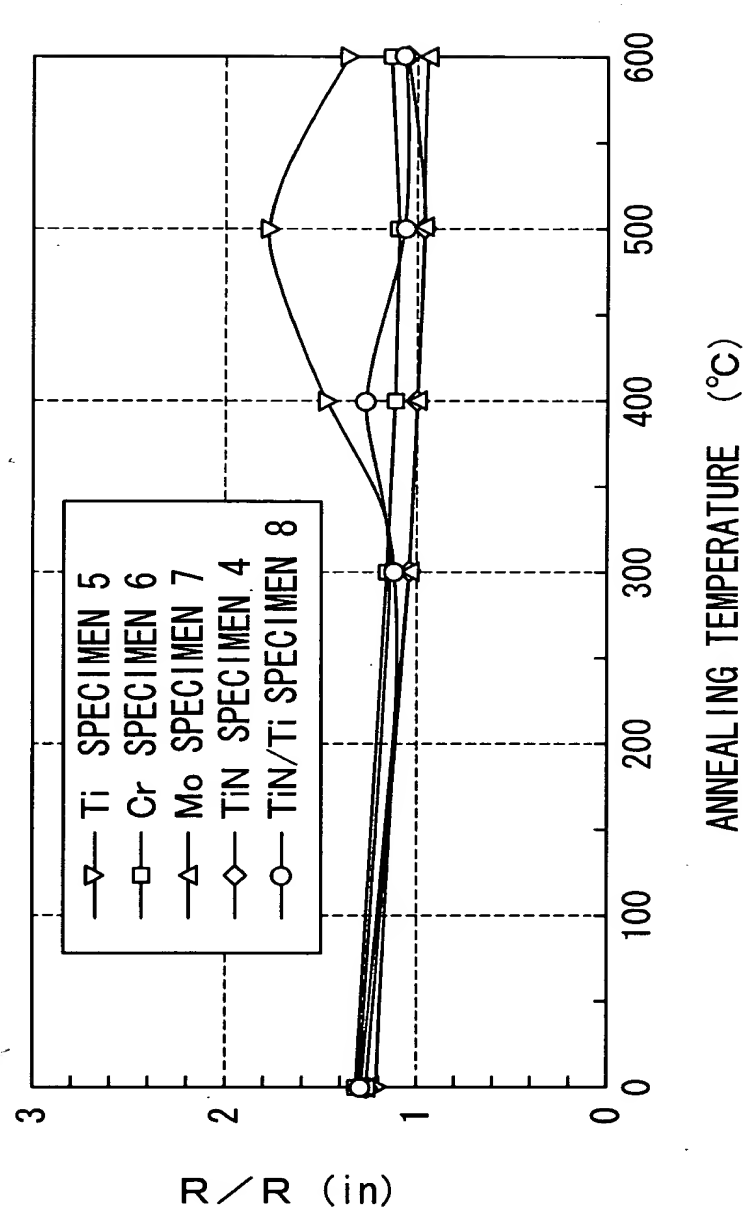

FIG. 29

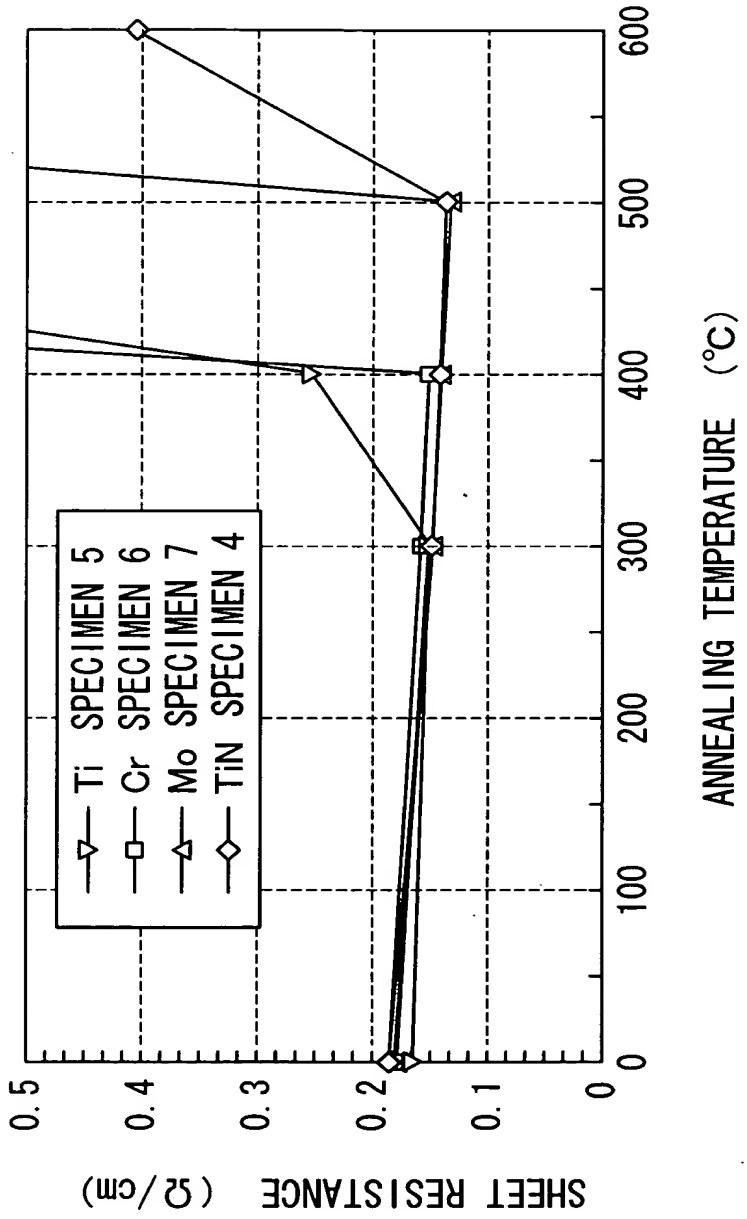

FIG. 30

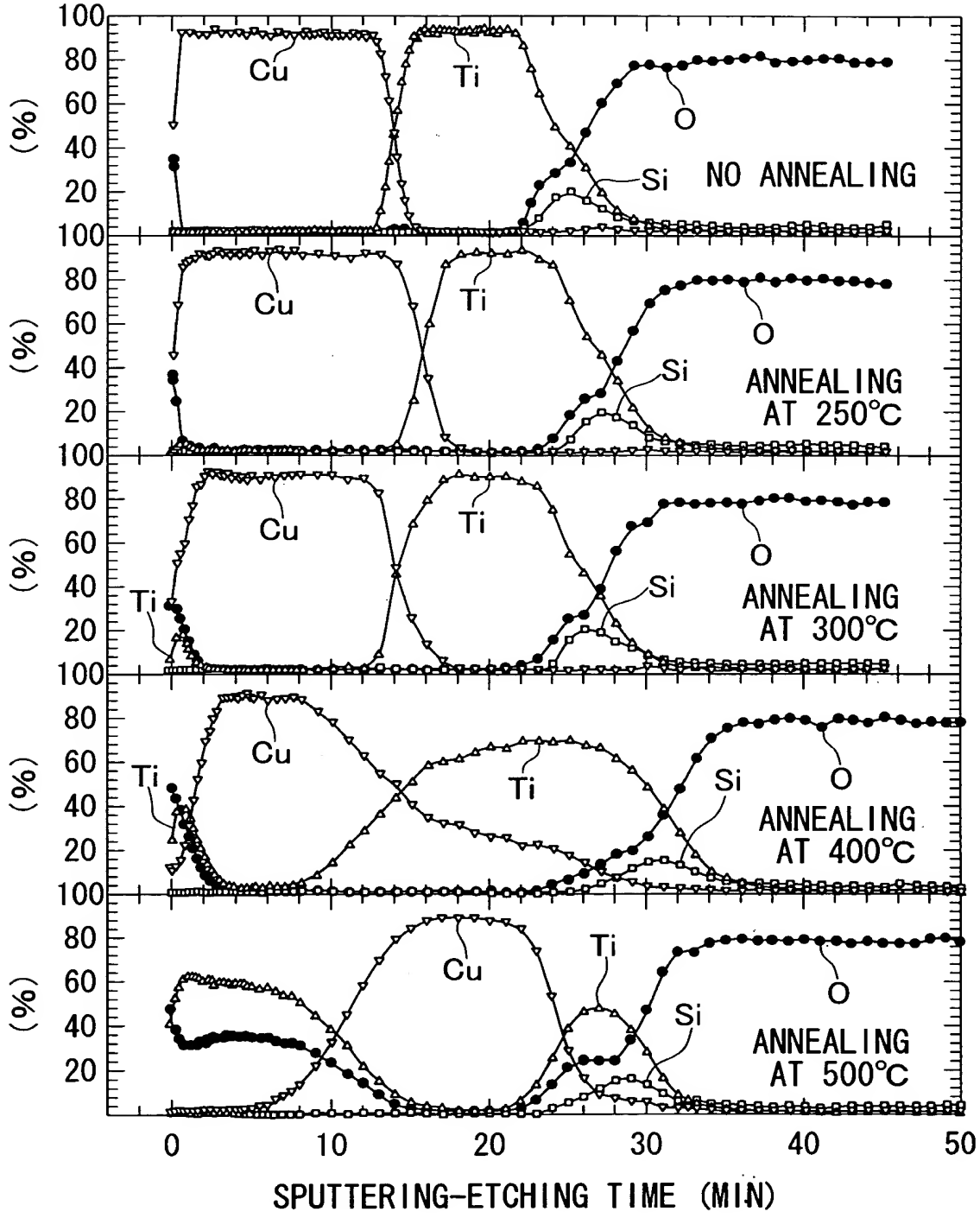

FIG. 31

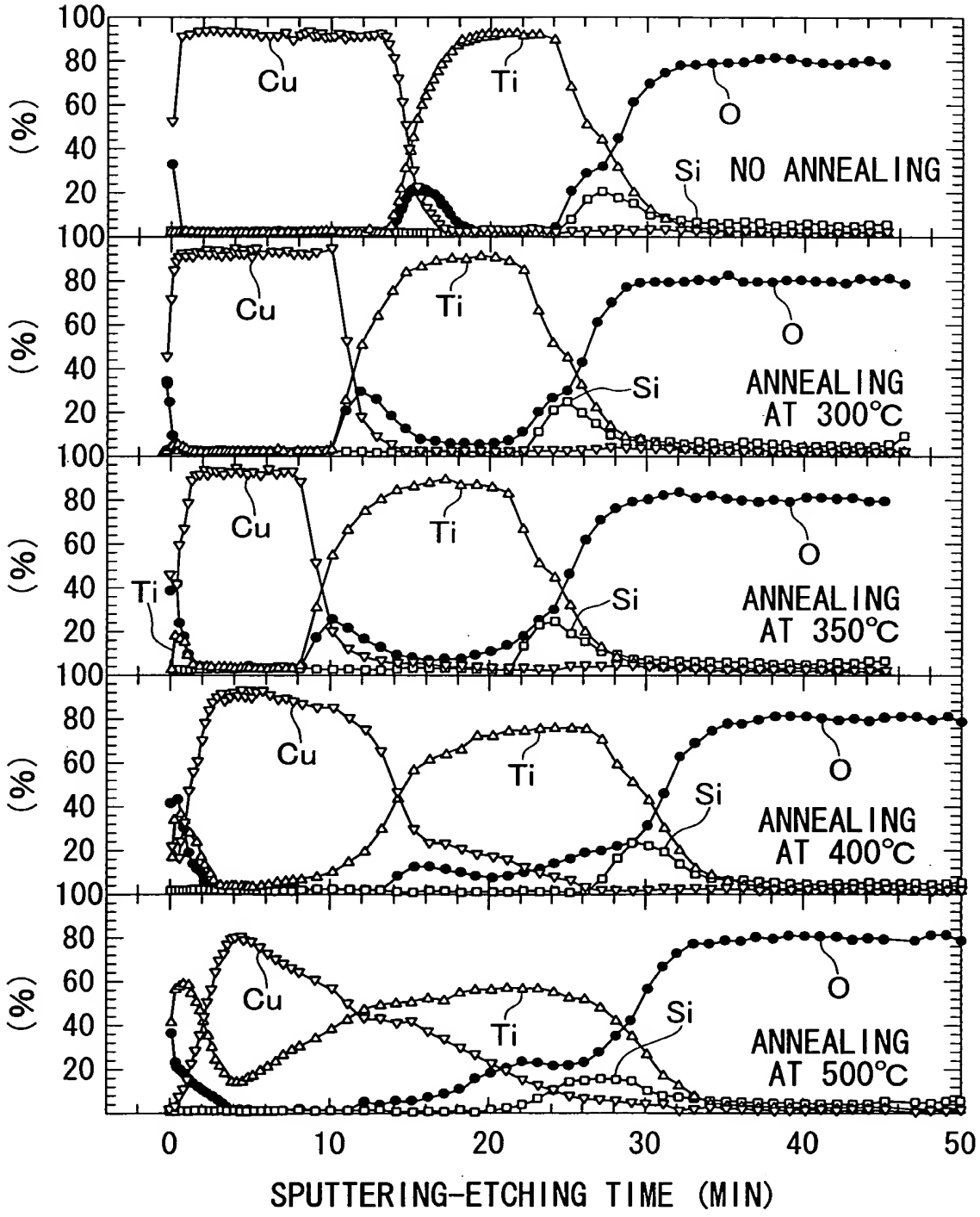

FIG. 32

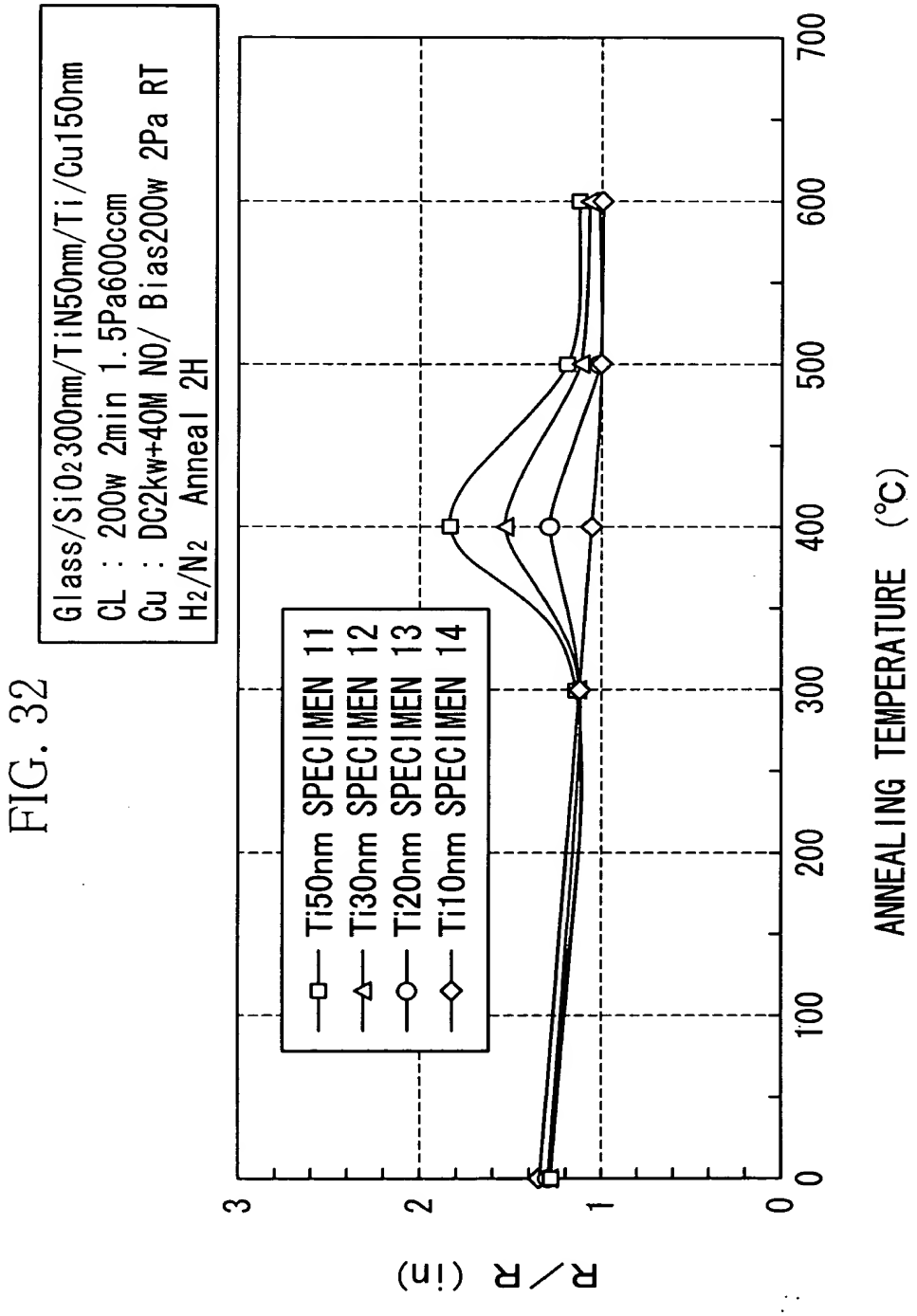
Glass/SiO2 300nm/TiN50nm/Ti/Cu150nm
CL : 200w 2min 1.5Pa600ccm
Cu : DC2kw+40M NO/ Bias200w 2Pa RT
H2/N2 Anneal 2H
Ti50nm SPECIMEN 11
Ti30nm SPECIMEN 12
Ti20nm SPECIMEN 13
Ti10nm SPECIMEN 14
R/R (in)
0
1
2
3
0
100
200
300
400
500
600
700
ANNEALING TEMPERATURE (°C)

FIG. 33

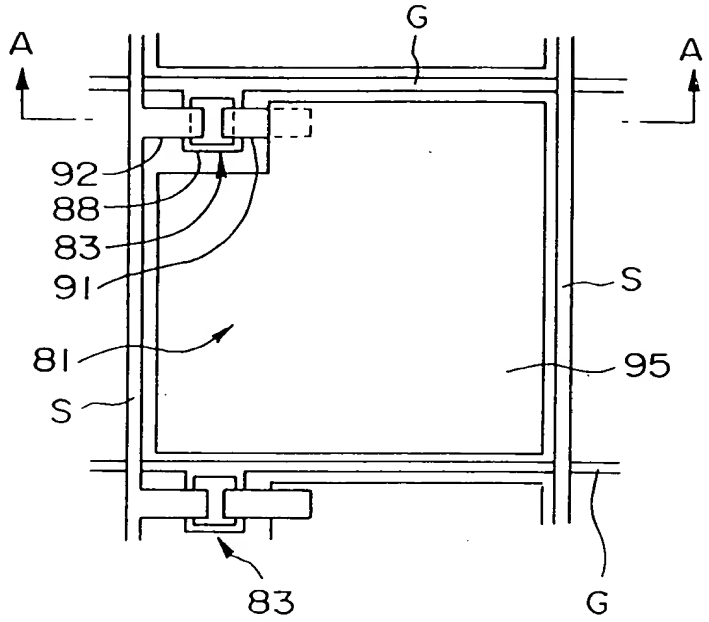

FIG. 34